

Gateway for Accelerated Innovation in Nuclear December 2017 Highlights Report

Funding Opportunities

December 7: **U.S. Secretary of Energy Rick Perry released a funding opportunity announcement (FOA)** to support development of advanced nuclear energy technology. The Department of Energy (DOE) is soliciting proposals for cost-shared projects to develop innovative, industry-driven reactor designs and accompanying technologies with high potential to advance nuclear power in the United States.

DOE expects to make up to \$30 million or more available in FY 2018 awards, subject to the availability of funding. The FOA will be open for a five-year period accepting applications on a year-round basis, with a quarterly selection process. Additional funding will be available in future years, as allocated by Congress.

Through this competition, DOE encourages U.S. companies to partner with other U.S. federal agencies, public and private laboratories, institutions of higher education, and other domestic entities to share expertise needed to successfully develop these innovative technologies. (DOE Press Release)

December 13: The Gateway for Accelerated Innovation in Nuclear (GAIN) initiated the **FY 2018 NE Vouchers** process to assist advanced nuclear energy technology developers with access to world class expertise and capabilities available at DOE National Laboratories. The vouchers are provided by the DOE's Office of Nuclear Energy (NE) to support nuclear energy innovation.

NE Vouchers provide funding to a DOE national laboratory to conduct research or technical support activities to help businesses overcome critical technology and commercialization challenges. They generally range from \$50,000 to \$500,000. Approximately \$4 million will be available in FY2018. Information on the NE Voucher Program, including the Request for Assistance (RFA) and contract templates is available on the GAIN website (gain.inl.gov) under the Funding Opportunities tab. (INL Media Release)

Outreach

December 6: The **Nuclear Energy Institute (NEI) Advanced Reactor Working Group (ARWG)** held their quarterly meeting in Washington DC at the NEI Office. Rita Baranwal and the Technology Working Group (TWG) chairs provided updates. Other presentations included regulatory, licensing, and legislative updates.

December 7: The **Nuclear Energy Advanced Modeling and Simulation (NEAMS) Executive Advanced Reactor Industry Council (NEARIC)** Meeting was held at the NEI Offices in Washington DC. Discussions centered on planning M&S "hands on" workshops for the Technology Working Groups (TWGs) and reviewing recommendations/status from the previous meeting in September. The Molten Salt Reactor (MSR) TWG modeling and simulation (M&S) workshop will be held at Argonne National Laboratory (ANL) on February 26-28, 2018. This workshop will focus on computational fluid dynamics (CFD)/thermal-hydraulics, which will be one of the first engagements for the NEAMS new CFD Center of

Excellence. The High Temperature Gas Reactor (HTGR) and Fast Reactor (FR) TWGs are working with NEAMS on the scope and dates to meet their specific needs.

December 11-13: Rita Baranwal presented and moderated a panel on Advanced Nuclear during the **Deep Decarbonization Symposium** in San Francisco, CA. This symposium was a gathering of leaders in climate, energy, policy, entrepreneurship, and investment and included support from the Pritzker Innovation Fund, Third Way, Sutter Securities Incorporated, Anthropocene Institute, Morrison Foerster, Fiona Banister, and Toniic Institute. The symposium focused on the need for collective action on channeling massive research, development, and investment into efficiency, low carbon energy, carbon dioxide capture, and natural carbon preservation and storage. The GAIN Advanced Nuclear Directory of developers and suppliers was also debuted at this event.

December 11: The **Advanced Nuclear Directory** of developers and suppliers was created in partnership with GAIN and Third Way, with the help of the US Nuclear Infrastructure Council (USNIC). It contains a sample of companies engaged in the development of advanced nuclear technologies, who volunteered to be part of this effort. The directory will be updated quarterly.

December 18: Revision 1 of the **GAIN Communications Plan** was delivered to the GAIN director. The plan is an internal planning and implementation document. It describes the goals, strategies, objectives, and tactics needed communicate and collaborate with the broader nuclear industry.

Regulatory

December 14: Mark Holbrook attended the **NRC Public Meeting on Process Improvements for the Licensing of Advanced Reactors** in Bethesda MD. NRC staff provided updates on their work to address functional containment requirements for advanced reactors, use of higher assay lower enriched uranium for various advanced designs, reactor siting near population centers, and Licensing Modernization Project progress. NRC also confirmed that the pending Regulatory Guide reflecting advanced reactor design criteria, developed through a joint DOE-NRC initiative, is near completion and will be reviewed by the Advisory Committee on Reactor Safeguards on February 7.

On December 26: NRC issued, **“A Regulatory Review Roadmap for Non-Light Water Reactors.”** This document describes the options available for NRC review of pre-application information and of formal applications. The document supports Strategy 3 of the NRC’s implementation action plans for advanced reactors. In addition, the document’s enclosure describes relevant regulations governing the testing requirements for advanced reactors, describes the process for determining testing needs to meet the NRC’s regulatory requirements, clarifies when a prototype plant might be needed and how it might differ from the proposed standard plant design, and describes licensing strategies and options that include the use of a prototype plant to meet the NRC’s testing requirements. The roadmap is available at gain.inl.gov or on the NRC website, ADAMS Public Documents, accession # ML17312B567, <https://www.nrc.gov/reading-rm/adams.html>

International

December 17-18: The United States Department of Commerce’s (DOC) International Trade Administration (ITA), with the support of the U.S. Department of Energy (DOE), organized a **U.S.-KSA Civil Nuclear Energy Roundtable** in Riyadh, Saudi Arabia. The purpose of the Roundtable was to initiate

a partnership process between U.S. civil nuclear energy companies and the King Abdullah City for Atomic and Renewable Energy (K.A.CARE), and between the U.S. and KSA civil nuclear industries. The Roundtable will provide an opportunity for in-depth information sharing and discussion of U.S. industry's technologies, products, and services to support the KSA's nuclear power deployment plans.

The Roundtable focused on two areas: (1) Advanced Reactor Technologies and (2) Human Capacity/Workforce Development. The goal of the Roundtable was to discuss how U.S. providers of advanced reactor technologies and workforce development services can support K.A.CARE's plans in these areas. Potential participants that are U.S. advanced reactor technology providers, should be willing to partner with the KSA and have technology that is scheduled to be deployed in the late 2020s to early 2030s or sooner. U.S. companies in this area include providers of advanced light water small modular reactors (SMRs), high temperature gas reactors, and sodium cooled fast reactors.

Advanced reactor technology providers will receive heightened consideration if they are reactor designers and can demonstrate one or more of the following attributes.

- Be a recipient of funds from the U.S. Department of Energy's (DOE) Gateway for Accelerated Innovation in Nuclear (GAIN);
- Be a Federal cost share recipient;
- Have DOE Technical Readiness Level 3 or greater;
- Have experimental work underway at a university or U.S. National Laboratory facilities.

Department of Commerce, International Trade Administration announcement.

GAIN Look Ahead

<i>FY 2018 Date(s)</i>	<i>Title</i>	<i>Location</i>	<i>GAIN's Role</i>
January 9-11:	DOE and NEI Meeting	Washington, DC	Attend
January 15-18:	GAIN Meeting	INL, Idaho Falls, ID	Present, Attend
January 24-26:	Virginia Section ANS Meeting	Richmond, VA	Present
January 29-Feb 1:	Nuclear Power Council Bi-Annual Meeting	EPRI, Charlotte, NC	Present
February 7:	Advisory Committee on Reactor Safeguards (ACRS) Future Plant Designs Subcommittee, Advanced Reactor Design Criteria	NRC Headquarters, Rockville, MD	Technical Support
February 20-22:	Advanced Reactors Technical Summit V & Technology Trailblazers Showcase	Texas A&M, College Station, TX	Present, Booth
February 22:	ACRS Future Plant Designs Subcommittee, Containment Functional Requirements	NRC Headquarters, Rockville, MD	Technical Support
February 27-29:	NEAMS MSR TWG Workshop	ANL, Chicago, IL	Attend
March 6:	Nuclear Innovation Week: Third Way Advanced Reactor Summit	Longview Gallery, Washington DC	Attend
March 7:	Nuclear Innovation Week: NEI R&D Summit	Longview Gallery, Washington DC	Attend
March 8-9:	Nuclear Innovation Week: Enabling Advanced Reactors for the Market (GAIN Symposium)	GWU, Washington DC	Organize, Present, Manage
March 11-15:	TMS 2018 Annual Meeting & Exhibition	Phoenix Convention Center, Phoenix, AZ	Tech Chair, Booth
March 12:	NEI ARWG Meeting	North Bethesda Marriott, Bethesda, MD	Attend
March 13-15:	Regulatory Information Conference (RIC)	North Bethesda Marriott, Bethesda, MD	Present, Attend
March 27-28:	Int'l SMR & Advanced Reactor Summit	Westin Buckhead, Atlanta GA	Present, Attend, Booth
April 18:	GAIN Executive Advisory Committee (EAC) Meeting	INL Meeting Center, Idaho Falls, ID	Organize, Manage, Tours
April 25-26:	NRC-DOE Workshop on Advanced Reactors	North Bethesda Marriott, Bethesda, MD	Attend

For questions or additional information, please contact Lori Braase, GAIN, lori.braase@inl.gov.